

QUICK START GUIDE



MANTADIGITAL

HBK-4002

Issue 2 February 2013 for V2.6.5 software

SITUATIONAL AWARENESS, THE WORLD OVER



Introduction

The Quick Start Guide is designed to give users a brief overview of the basic operation and control of the MANTADIGITAL™ system.

Users should refer to the full **operating instructions** and **safety warnings** that are contained in the MANTADIGITAL™ Operator's Handbooks HBK-4001 Parts 1 and 2 (see chapter 3 for details).

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2 Safety notices



WARNING: ELECTRICAL HAZARD

This system is not fitted with safety interlocks. Lethal voltages are present within all units.



WARNING: MAINS VOLATGES

AC Mains, 3-phase and DC voltages are present within the various parts of the system. Power supplies to equipment must be fully isolated before accessing any part of the system or its sub-assemblies.



CAUTION: VIRUS PROTECTION

Prior to use, all removable media used with Kelvin Hughes products **MUST** be fully scanned for viruses on a PC that has up to date anti-virus software installed.



ADDITIONAL SAFETY NOTICES

Users must familiarise themselves with the full list of safety notices, warnings and anti-virus precautions that are contained in the MANTADIGITAL™ Operators handbooks HBK-4001 parts 1 and 2.

3 Operator Handbooks

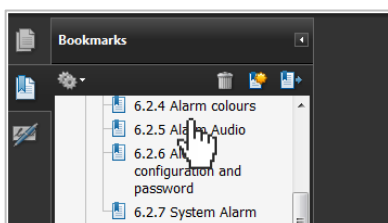
3.1 Handbook format

Electronic copies of the system handbooks can be found on a CD supplied with the system. This CD will be labeled *HBK-5001: MANTADIGITAL™ commercial handbooks*.



These have been designed for use on a PC using a PDF reader or a tablet loaded with an appropriate PDF reader application.

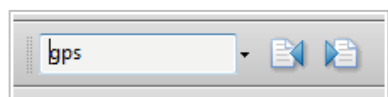
There are a number of methods for searching for a specific operation or function within the handbook:



Bookmarks

Click on any of the entries in the bookmarks

Bookmarks can be enabled in Adobe from: *View/ Navigation panels* then select bookmarks.



Find

Search for a topic or word using the FIND function in Adobe reader.

If this is not open, press **Ctrl + F**, enter the desired keyword in the text box and click enter.

3.2 Export the handbook

The Operator's handbook (*HBK-4001 parts 1 & 2*) and Quick start guide (*HBK-4002*) can be downloaded directly from the MANTADIGITAL™ processor (approximately 50.0MB).

1

Noting all antivirus warnings shown in the *safety notices*, insert a virus free USB memory stick into the USB socket located on the front of the MANTADIGITAL™ processor unit.

From the Standby screen, select **Backup and Restore** then click **Export Operators Manual**.

2

In a normal system the drives are allocated as follows:

C: Main hard drive
D: Operating system
E: System Data
F: CD/ DVD-ROM

G: Normally the USB flash drive

If you are not in the correct drive, click on the **.. ** symbol to go up a level.

Select the memory stick and click **Export**.

3

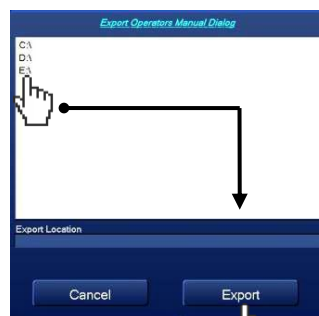
The system will now download the handbooks to the USB flash memory.

A notification is presented when the download is complete.

4

Click the '**Eject removable media**' button and remove the memory stick from the processor.

Click **X** to close the backup and restore menu and return to the standby screen.



Handbooks are in PDF format

4 Getting started

4.1 Switching ON

Ensure that the external AC mains supplies to the display, processor and *all associated equipment* are switched ON at source.

Processor ON:

Ensure the MANTADIGITAL™ navigation processor power switch is in the **ON** position.



MantaDigital processor power switch:



0 = OFF

1 = ON

Note: If the processor switch is in the OFF position, the system cannot be started from the display.

Display ON:

To switch the system ON, press the ON/ OFF button on the display control panel:



MantaDigital display control buttons



Startup screen:

The system will now start and the two fans mounted in the MantaDigital navigation processor will run. During the boot-up/ start-up sequence, the following will appear on-screen:



Start-up screen

After a short delay, the system will automatically start with the Kelvin Hughes standby screen.



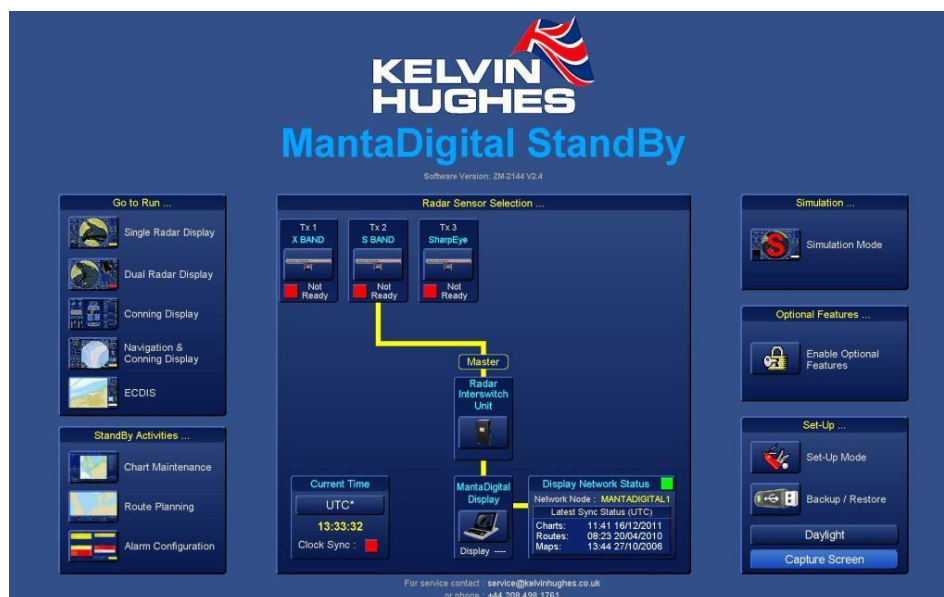
MANTADigital standby screen

Chapter 4: Getting started

4.2 Standby screen overview

Each section of the standby screen is briefly detailed below.

Note: Some functions are only available when they have been enabled in **Optional Features**.
If the graphic for a function is greyed out and cannot be selected, it has not been enabled.



4.2.1 Go to Run ...



Place the cursor over the desired mode and left click to set to run (*see warning below*).



Single Radar Display: Sets the selected transmitter to run and starts Single Radar Display mode with a single PPI.

Dual Radar Display: Sets the selected transmitter to run and starts Dual Radar Display mode with a primary and secondary PPI.

Conning Display: Starts Conning Display mode.

Navigation and Conning Display: Sets the selected transmitter to run and starts Navigation and Conning Display mode.

ECDIS: Starts ECDIS mode.



TRANSMISSION WARNING: When a transceiver is set as Master, selecting radar, ECDIS or navigation and conning display modes will cause the selected transmitter to transmit and antenna to rotate.

4.2.2 Standby activities ...



Place the cursor over the desired mode and left click to open.



Chart Maintenance: Starts Chart Maintenance mode which is automatically enabled for Chart Radar and ECDIS but is also available as a purchasable option.

Route planning: Starts Route Planning mode which is automatically enabled for Chart Radar and ECDIS but is also available as a purchasable optional feature.

Alarm configuration: Opens the Alarm Configuration page where system alarms can be set-up.

4.2.3 Software version



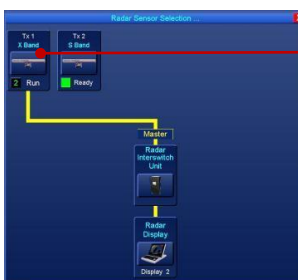
The current **Software Version** is displayed at the top of the standby screen as **Software version ZM-2144 Vx.x.x** (where x.x.x is the version of software currently installed).

Selecting the software version automatically opens a new page that shows the software loaded into various parts of the system. Using specific instructions supplied separately, the system software can also be upgraded from this page.

4.2.4 Radar sensor selection ...



In an interswitched system, place the cursor over the desired transceiver and *left-click* to select as *Master* or *right-click* to select as *Slave*. In single radar systems (one transceiver and no interswitch) it is not necessary to select a sensor.



Radar Sensor Selection: Selects any transceiver(s) connected to the system as Master or Slave.

The system is set to RUN by selecting any of the modes enabled in 'Go to Run...' see section 4.2.1 page 6.

4.2.5 Simulation ...



Left-click on the simulator to run a simulated video replay or right-click to run a 50 target simulation.



Simulation: A Simulator mode where simulated sensor data with synthetic radar targets can be replayed in all navigation modes allowing the operator to familiarise themselves with the operation of the system whilst alongside and without running the radar transceiver.

4.2.6 Optional features ...



Left click to open



Optional features: Allows the selection and enabling of optional features by the use of a unique four digit KH-Key. Optional features are available from Kelvin Hughes at the time of purchase or can be enabled at any time during the life of the equipment.
See the main operator's handbook (HBK-4001) for additional details on optional features.

4.2.7 Set-up ...



Left click to open



Set-Up mode: This area is password protected and is not available to the system user/ operator.

Backup / Restore: Allows the backup and restoration of data to and from a virus free USB memory stick. Data includes system configuration, routes, user generated maps and screen captures.

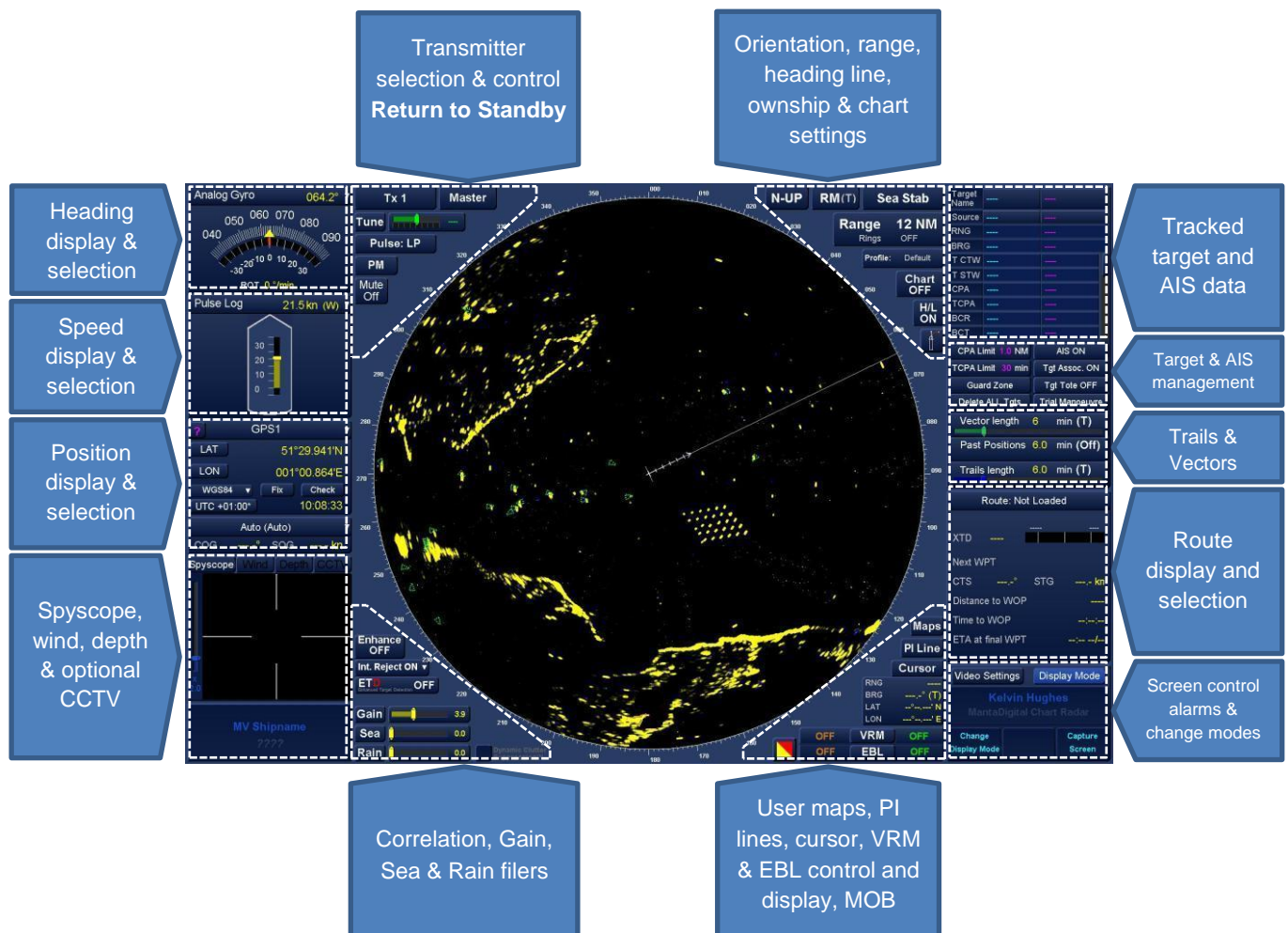
Daylight / Dusk / Night: Changes the screen brilliance between the calibrated *Daylight*, *Dusk* or *Night* modes.

Capture screen: Takes a Jpeg screenshot of the current screen being displayed. This may be exported using the *Export Debug Data* function from within *Backup / Restore*.

4.3 Single radar display overview

The display functions are fully detailed the main operator's handbooks HBK-4001 part 1.

The following gives an approximate overview of the **single radar 'Run'** screen layout.









4.4 Display control panel

The display control buttons located at the bottom of the display are common to all console, desktop and pedestal mounted displays.



The function of each button is detailed below.



 <p>System Alarm button</p> <p>This button flashes and an audible alarm is generated when there is a potential error within the system</p> <p>Pressing the system alarm button silences the alarm</p> <p>The button remains illuminated red until the alarm condition is cleared</p> <p>(See note)</p>	 <p>Display Button illumination</p> <p>Changes the brilliance of the trackerball and display control buttons</p> <p>Repeated presses increases the illumination from OFF to maximum in 13 steps. At the 14th press the illumination returns back to OFF</p>	 <p>Screen brilliance</p> <p>Increases or decreases the main widescreen TFT display backlight illumination</p> <p>Press and hold the 'up' and 'down' buttons together for approximately 3 seconds to revert the backlight to the default brilliance level</p>	 <p>Switch screens</p> <p>For systems fitted with the optional MANTADIGITAL network controller (DNC), press to select the video from a different processor</p> <p><i>If no DNC is fitted, this button has no function</i></p>	 <p>Power ON/ OFF</p> <p>Press to switch the display and processor ON/ OFF</p> <p> CAUTION:</p> <p><i>This is a software ON/ OFF control and does not isolate the system from the AC mains supply</i></p>
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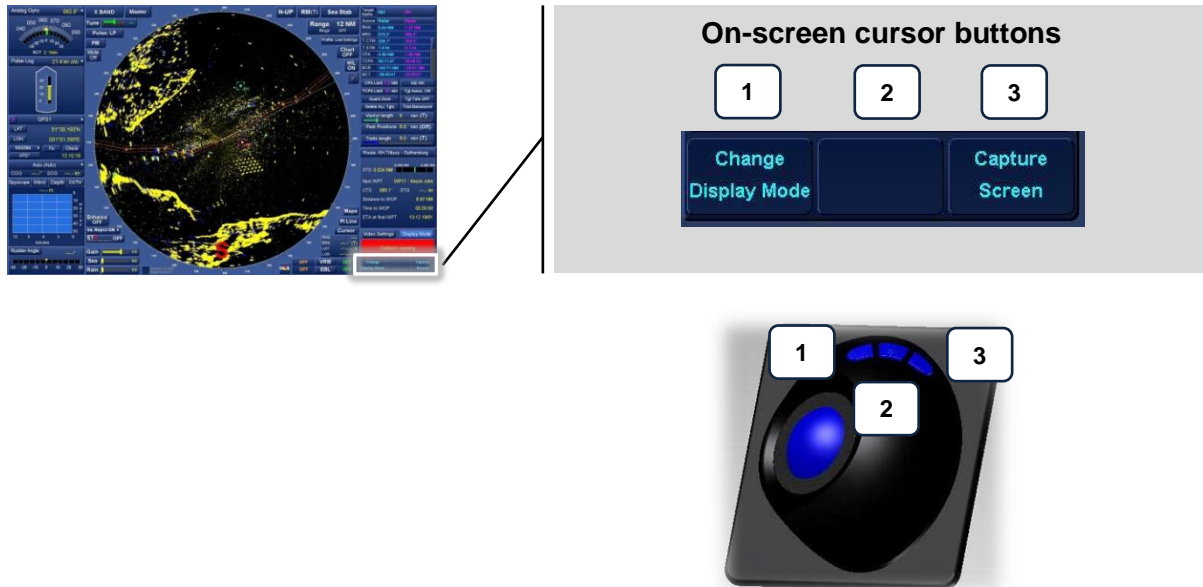
Note: The **System Alarm** button does not indicate or silence navigation alarms such as collision warning etc.

4.5 Trackerball and buttons explained

The MANTADIGITAL™ system is operated using a trackerball and three buttons in a similar way to operating a mouse on a desktop computer.

The trackerball is used to change the position of the on-screen cursor, the three buttons on the trackerball correspond to the 'on-screen' functions with each button action shown in the lower right hand side of the display.

If a button is blank (no text) then the button has no function.



In the Operator's handbook, the button layout for each function is described as follows:

1	2	3
Left	Middle	Right
AIS ON/ OFF	AIS settings	Safety-Rel Msgs
Switches AIS targets ON or OFF	Opens the AIS settings dialog	Opens AIS Safety Related Messages (AIS SRM)

If a button has *no function* or *action* then the cursor button is blank as shown below:

Left	Middle	Right
Select Target	Acquire	

4.6 Virtual keyboard

Where no physical keyboard is fitted to a system, a virtual on-screen keyboard can be used to enter text.

To activate the on-screen keyboard click in the area where a text entry is required and the keyboard will automatically appear. For example; when creating a new user map, selecting **Rename** will cause the on-screen keyboard to appear.

Examples of the on-screen keyboard



Keyboard with Shift lock OFF & Caps lock ON



Keyboard with Shift lock ON & Caps lock OFF

To enter text, place the cursor over the required character on the keyboard and left-click to select.

Other on-screen keyboard functions are described below.

Button	Button function
<< & >>	Moves the cursor position within a text entry to the left (<<) or right (>>)
Clear all	Clears all text
Shift Lock	Locks the shift key
Space bar	Add a space
Backspace	Deletes the previous character
Cancel	Discards any entries and closes the on-screen keyboard.
Caps lock	Locks the Cap key
Num lock	On systems where an optional QWERTY keyboard is fitted, this locks the numbers on the physical keyboard. This has no function on the virtual on-screen keyboard.
Accept	Accepts any entries and closes the on-screen keyboard.




4.7 Adjusting parameters on-screen

4.7.1 Sliders

Some parameters are adjusted by the use of 'sliders'.

To adjust a slider, place the cursor over the marker on the bar, press *and hold* the left button; the cursor symbol will change to a hand. Keeping the button pressed, use the trackerball to drag the slider to the desired position or value.

Examples of sliders in a radar display

	<p>Tune bar adjustment using the horizontal green slider bar.</p>
	<p>Vector length adjustment using the horizontal green slider bar.</p>
	<p>Adjustment of data view using a vertical slider.</p>



4.7.2 Adjusting numeric values

Some functions required the adjustment of a numeric value.

This is achieved by placing cursor over the value to be adjusted. Press *and hold* the left button and arrows will appear above and below the number to be adjusted.

Keeping the button pressed, roll the trackerball up and down (north/ south) to adjust the number to the desired value.

Example of numeric value adjustment

	 <p>TCPA limit being adjusted</p>
---	--

4.7.3 Drop down boxes

Some functions require the use of a 'drop down' box. These are opened by clicking anywhere within the button. For example; clicking anywhere in the speed sensor box will produce the drop-down box; sensors can then be selected by left-clicking on any of the items in the drop down list.

Example of a drop-down box

	<p>Speed sensor selection Clicking inside any part of the button will produce the drop-down box.</p>
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4.7.4 Sensor availability

Where a drop down box is opened, a list of configured sensors will be shown. The colour of the text determines if the sensor is available for selection:

Pulse Log-Sea

If the text is **WHITE**, then the sensor is configured for use and is available for selection.

Serial Log (VBW) Sea

If the text is **BLACK**, the sensor is configured for use but a signal is not being received. This could be because the sensor is switched OFF or has a fault. The sensor cannot be selected.

4.7.5 Tabs

Certain menus are accessed by selecting tabs. These are selected by placing the cursor over the tab and left clicking.

The text label for a tab may be a different colour.

- **WHITE** text means that the tab/ function is enabled and available for selection.
- **BLACK** text means the tab cannot be selected because:
 - a) A signal is enabled but is not being received, e.g. depth.
 - b) The tab is an *optional feature* that has not been enabled; e.g. CCTV input.



Example of enabled and disabled tabs:

- The Spyscope and Wind tabs have **WHITE** text (**tab enabled**).
- The Depth and CCTV tabs have **BLACK** text (**tab disabled**).

4.7.6 Closing tabs and menus



Some dialogs and menus must be closed by clicking on **X** which is located at the top-right of some tabs/ menus.



Caution: Some functions may not be accessible until a menu or tab is closed.

4.7.7 Tick boxes

Some features require a tick-box to be selected. To select a tick box, place the cursor in the box and left click.



*Tick box function **ENABLED***



*Tick box function **DISABLED***

4.8 MANTADIGITAL Control Interface (MCI) panel

The **optional** MantaDigital Control Interface (MCI) panel allows the operator quick access to common functions including gain, auto-sea and rain clutter, range, EBL and VRM.

Each function is detailed in the relevant section of the operator's handbook, i.e. for use of the Gain control on the MCI panel, see Gain control in the operator's handbook HBK-4001 pt 1: *A to Z operators instructions*.



NOTE: The F1 and F2 buttons are currently not assigned and have no function

MCI panel backlight brilliance



Repeated presses of the **BRILL** button on the MCI panel vary the backlight for the panel from OFF (1st press) to maximum in 6 steps.

On the 7th press the control reverts to OFF and the cycle starts again.

4.9 Door locks and keys

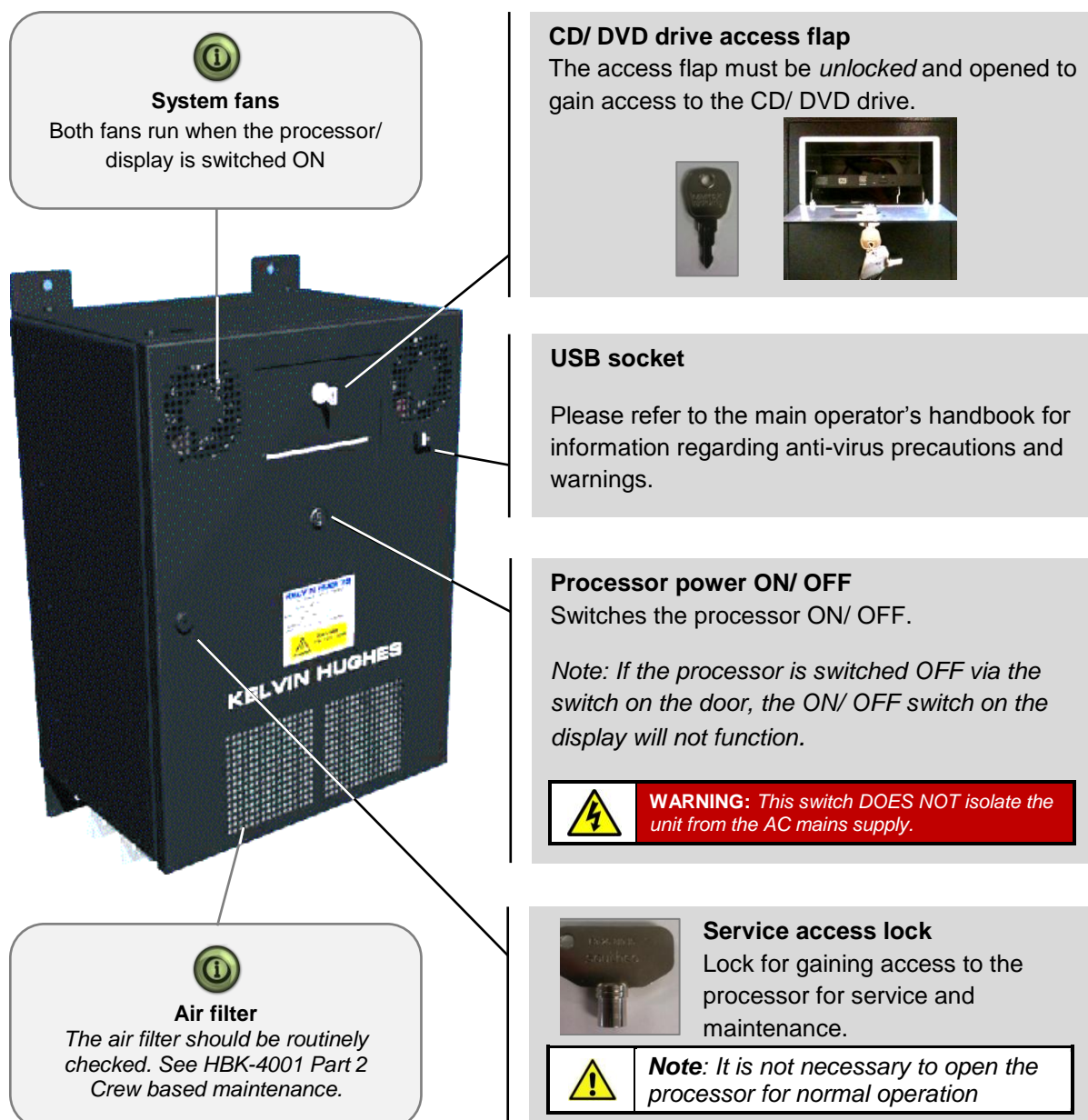
The system is supplied with two sets of keys. One set of keys should be placed in a position where they can be quickly accessed for use. The spare set should be carefully stored for use in the event of a loss of the first set of keys.



Note1: Engineers and service agents will require access to both sets of keys to carry out service or maintenance tasks.

Note 2: If the keys are lost it may be necessary to replace the locking mechanism. Lock replacement due to lost keys is not covered under warranty.

The following details the location of the DVD drive, USB port and the processor ON/ OFF switch on the MANTADIGITAL™ navigation processor.

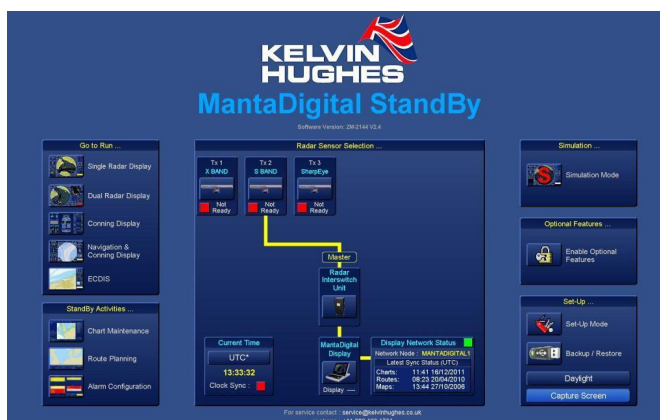


5 Go to Run ...

Depending on the system configuration, the following modes can be selected from the standby screen:

- Single radar display.
- Dual radar display.
- Conning display.
- Navigation & conning display.
- ECDIS mode.

The following section shows how to run each mode from the standby screen.



WARNING – Antenna rotation:

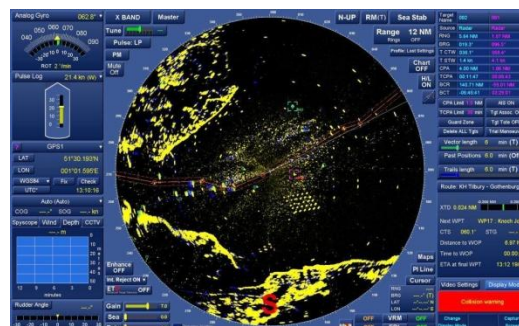
Selecting Radar, ECDIS or navigation & conning display modes will cause the selected (mastered) transmitters to transmit and antennas to rotate.

5.1 Single radar display



On interswitched systems, firstly select the desired transceiver.

From the standby screen select **Single Radar Display**.

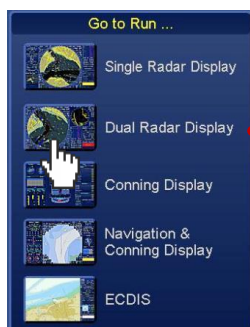


Transceiver activation from standby screen

When *single radar display* mode is started, the transceiver selected as *Master* in the standby screen is set to *Run* causing it to transmit and the antenna to rotate.

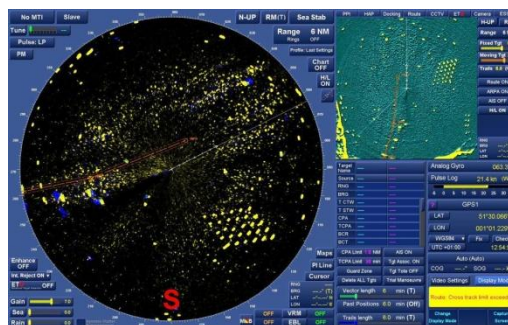
Setting the system back into Standby stops a mastered transceiver but *does not* switch it OFF.

5.2 Dual radar display



On interswitched systems, firstly select the desired transceiver.

From the standby screen select **Dual Radar Display**.



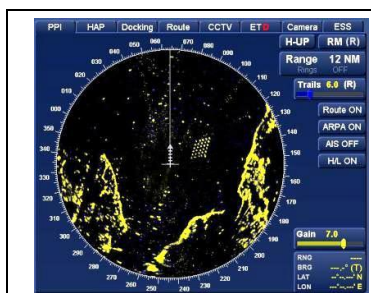
Transceiver activation from standby screen

When *dual radar display* mode is started, the transceiver selected as *Master* in the standby screen is set to *Run* causing it to transmit and the antenna to rotate.

Setting the system back into Standby stops a mastered transceiver but *does not* switch it OFF.

Dual radar display tabs

There are a number of tabs in the upper right hand side of the screen:



PPI tab

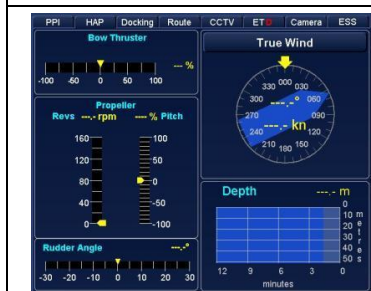
The PPI tab displays a secondary image from the transceiver *currently selected by the main PPI*.

Cursor position: A box below the gain control gives the range, bearing and position of the cursor within the 2nd PPI.

The following functions can be adjusted independently of the primary PPI:

- Screen orientation (N-UP, C-UP, H-UP).
- True or relative motion.
- Ownship/ screen offset.
- Increase/ decrease range.
- Control of trails.
- Routes ON/ OFF.
- ARPA & AIS targets ON or OFF.
- HL suppression.
- Gain control.

ARPA/ AIS targets: When acquired, all radar tracked targets and AIS targets will be displayed on both the primary and secondary PPI regardless of which display initiates the tracking.



HAP tab

If connected to a compatible sensor, the HAP tab displays information for bow thrusters, propulsion systems, rudder, wind and depth.

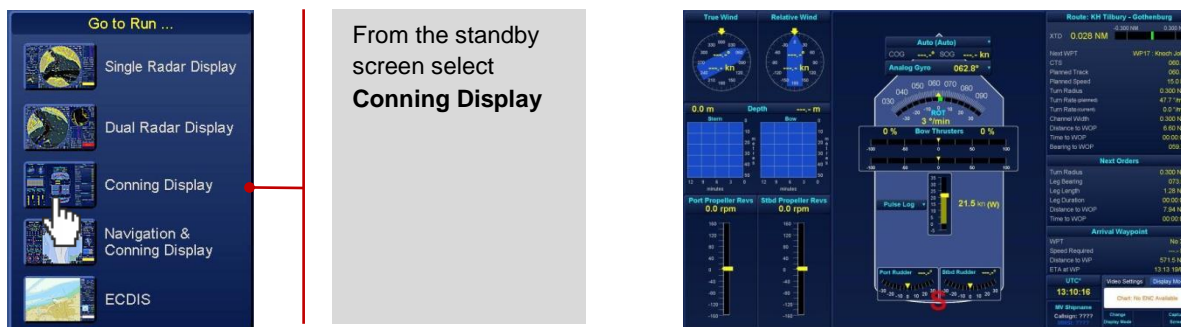
Note 1: Apart from changing the display of Wind from true to relative, there are no operator adjustable parameters in the HAP tab.

Note 2: The layout of the HAP tab changes depending on the sensors configured during commissioning.

Dual Radar display tabs (continued)

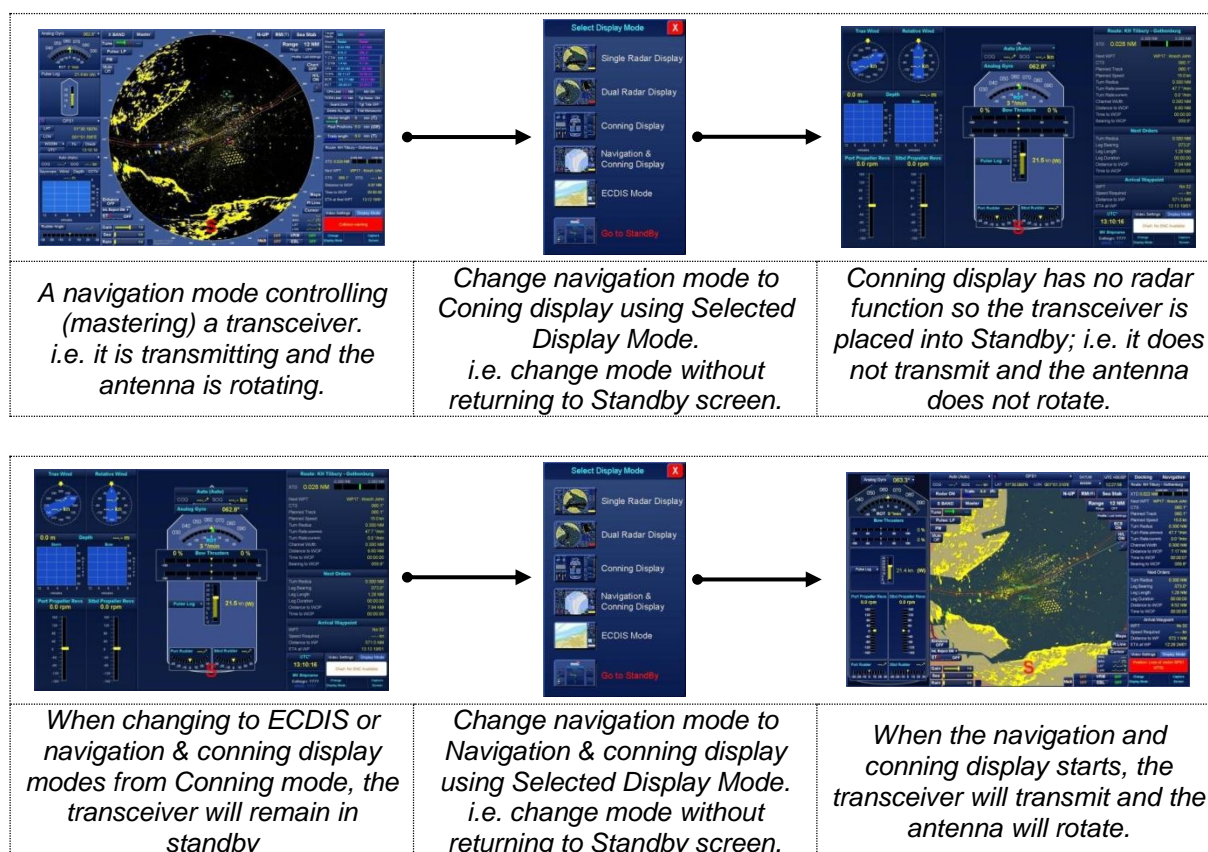
	<p>Docking tab</p> <p>When connected to a compatible sensor, the Docking tab displays information on heading, speed, wind and depth.</p> <p>Note: Where connected, wind can be changed from true to relative.</p>
	<p>Route tab</p> <p>A primary route can be loaded or deselected.</p> <p>Route settings can also be accessed allowing the level of detail for a route to be set and critical points (CP) to be added to the loaded route.</p>
	<p>CCTV tab (picture-in-picture)</p> <p>Where enabled, the CCTV tab displays video from a compatible external video source such as a CCTV system. This is not a standard feature but is available as an optional feature.</p> <p>NOTE: There are no operator adjustable parameters or camera controls in the CCTV tab.</p>
	<p>ETD mode tab</p> <p>This tab shows Enhanced Target Detection (ETD) mode.</p> <p>ETD is not a standard feature but is available as an optional feature.</p> <p>See the ETD section in part 1 of the Operator's handbook for further details.</p>
	<p>Camera tab</p> <p>This is the display <i>and control</i> of the optional FLIR night vision camera. The direction of the camera can be adjusted using the on-screen buttons.</p> <p>The camera can also be locked to a radar tracked target, VRM/EBL or ground position.</p> <p>This is not standard but is available as an optional feature.</p>
<p>The ESS tab in dual radar display is currently Under Development</p>	<p>ESS (Enhanced Spyscope)</p> <p>ESS mode is under development and is currently not available for use.</p>

5.3 Conning display



When conning display mode is started, no transceivers are set to run mode. However it should be noted that all transceivers are still in Standby unless they are being used by another display.

Transceiver activation when changing display modes



Stop the transceiver/ antenna

Setting the system to Standby from any navigation mode stops a mastered transceiver but *does not* switch it OFF.

5.4 Navigation & Conning display



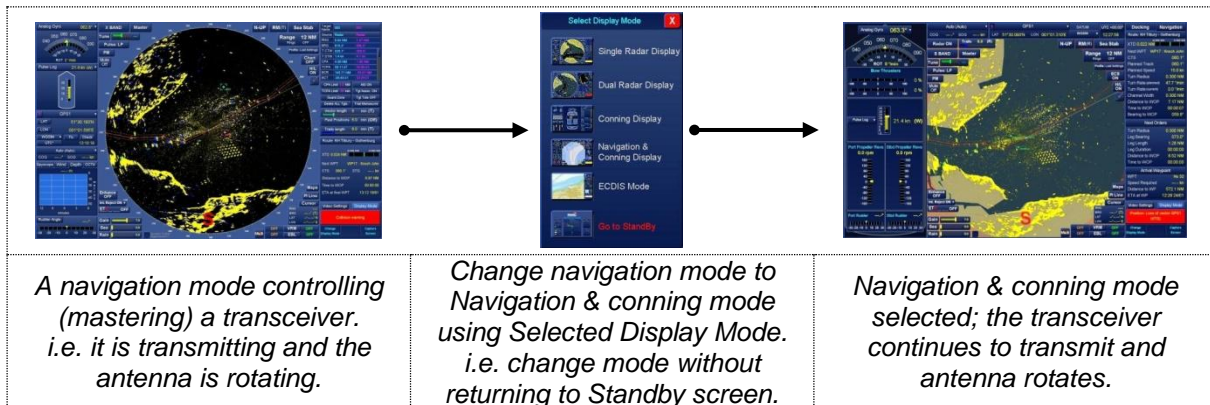
On interswitched systems, firstly select the desired transceiver.

From the standby screen select **Navigation & Conning Display**



When navigation & conning display mode is started from the standby screen, the transceiver selected as Master *will transmit and the antenna will rotate*.

Transceiver activation when changing display modes



Stop the transceiver/ antenna

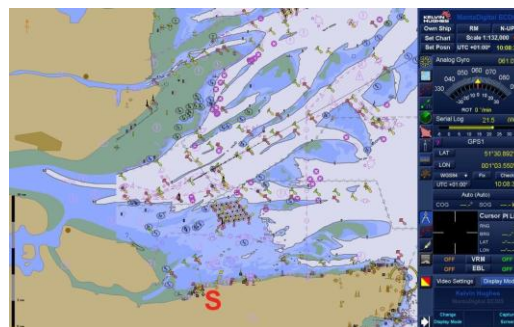
Setting the system to Standby stops a mastered transceiver but *does not* switch it OFF.

5.5 ECDIS mode

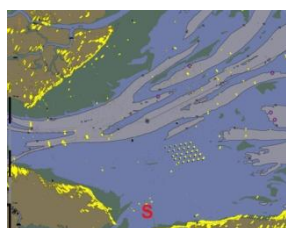


If the optional radar interlay is enabled, firstly select the desired transceiver.

From the standby screen select **ECDIS**.



Transceiver activation from standby screen

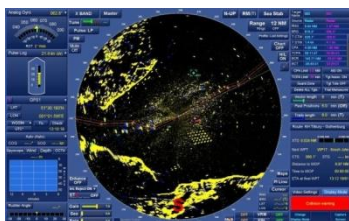


When ECDIS mode is started from the standby screen, the transceiver selected as Master will transmit and the antenna will rotate.

Select the **Radar control** icon then **Radar OFF**

The transceiver **continues to transmit** and the antenna will rotate but radar interlay is not shown.

Transceiver activation when changing display modes



A navigation mode controlling (mastering) a transceiver. i.e. it is transmitting and the antenna is rotating.

Change navigation mode to ECDIS using Selected Display Mode. i.e. not returning to Standby screen.

ECDIS selected; the transceiver continues to transmit and antenna rotates.

Stop the transceiver/ antenna

Setting the system to Standby stops a mastered transceiver but *does not* switch it OFF.

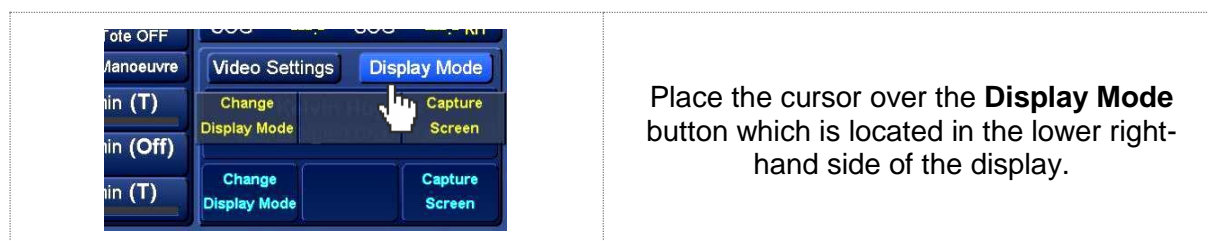
5.6 Returning to Standby

Returning to the standby screen from any navigation mode stops the selected (mastered) transceiver from transmitting and stops the antenna rotating.

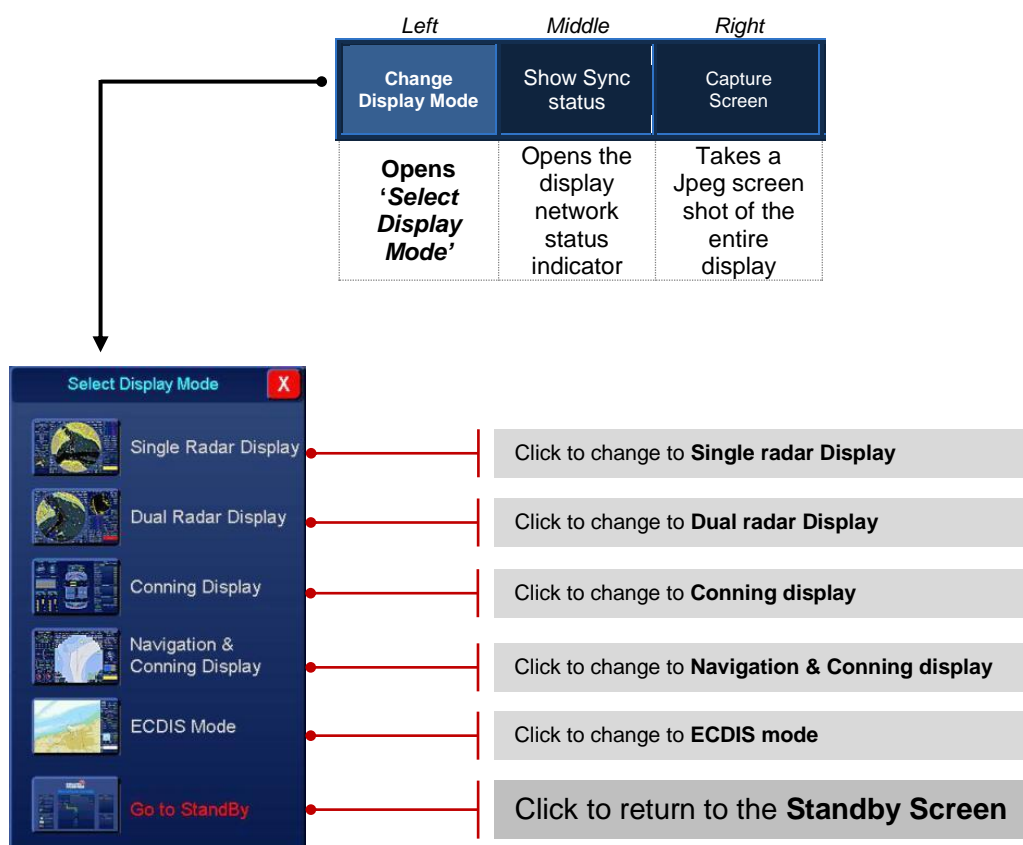
There are two methods of returning to the Standby screen.

5.6.1 Method 1: Return to standby or change display mode (all navigation modes)

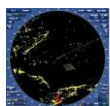
In all navigation modes, it is possible to return to standby or change display modes using the **Display Mode** button.



The cursor tooltip will change to show the following options:



5.6.2 Method 2: Return to Standby (Radar and ECDIS modes only)



Radar modes

To return to the standby screen, place the cursor over the currently selected transceiver which is shown at the top left side of the PPI:



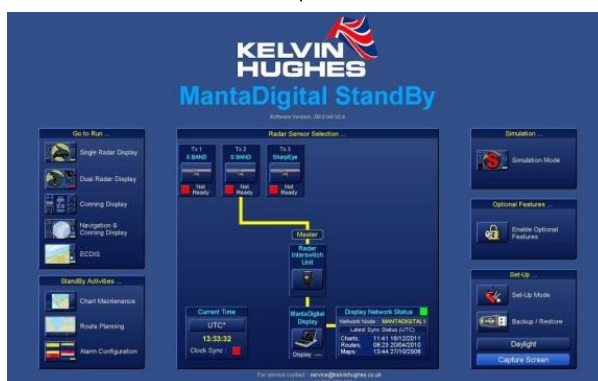
ECDIS

In ECDIS systems that have the optional Radar interlay enabled, select the **Radar Control** icon and place the cursor over the currently selected transceiver.



With the cursor over the transmitter control button the following options are available:

Left	Middle	Right
Select Radar Sensor	Go to Standby	Set H/L skew
Opens the radar sensor selection panel	Returns to the Standby screen	User correction of heading line errors



Standby screen

5.7 Stop transmission & antenna rotation

Returning to the Standby screen from *any* navigation modes places the selected transmitter into standby thus stopping transmission and antenna rotation.

This does not switch the transmitter OFF.

Switching the MANTADIGITAL™ display and/ or radar interswitch unit OFF does not isolate the power to transmitters, gearboxes or any associated sub systems.



Warning: Working aloft

Placing the system in standby mode is not suitable protection for working aloft.

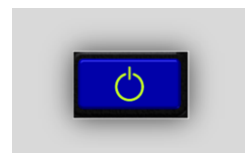
When working aloft, all safety notices shown in the operator handbooks must be observed. This must include full isolation of all power to transceivers, gearboxes and any associated sub systems.

5.8 Switching OFF

To switch the display and processor OFF, ensure the display is in the **standby screen**.

Press the **ON/ OFF** button on the display control panel.

After a short delay the display will shut down (the screen will go blank and processor fans will stop running).



WARNING: *The display control ON/ OFF button does not isolate the display, the processor or transceivers from the AC mains supply.*

5.9 Isolating power to systems

MANTADIGITAL™ display:

The display can be switch OFF as described in section 5.8 however this does not isolate the system from the mains supply or isolate the interswitch, transmitters, gearboxes and associated sub systems.

The display must be isolated at the appropriate mains breaker before opening the processor or attempting any maintenance procedures.

MANTADIGITAL™ processor:

The processor can be switch OFF using the ON/ OFF switch located on the front of the processor however; this does not isolate the system from the mains supply or isolate the interswitch, transmitters, gearboxes and associated sub systems.

The processor must be isolated at the appropriate mains breaker before opening the processor or attempting any maintenance procedures.

Radar Interswitch Unit (RIU):

The RIU is fitted with an illuminated mains switch which is located on the base of the unit. This switch turns the RIU OFF but does not switch OFF transmitter systems or isolate the RIU from the mains supply. When switched OFF, the RIU enters Bypass mode

Note: See the operator handbook HBK-4001 part 1 for additional details on Bypass mode.

The RIU must be isolated at the appropriate mains breaker before opening the unit or attempting any maintenance procedures.

X-band transmitter system:

MK4 & MK7 series: Transmitters and gearboxes do not have built in power isolators. Power to the transceiver and any associated sub systems must be isolated at the appropriate mains breaker before working aloft or attempting any maintenance procedures.

MK5 series: The MK5 upmast transmitter is run through the transmitter interface unit (TIU). The TIU is fitted with mains switch which is located on the top of the unit. This switch turns the TIU and MKV transmitter OFF but does not fully isolate the unit for the mains supply.

The TIU must be isolated at the appropriate mains breaker before opening the unit, attempting any maintenance procedures or working aloft on the MKV transmitter system.

S-Band transmitters systems:

S-Band gearboxes are partially powered from a Drive Control unit that is fitted with a keyswitch. When in the OFF position, this keyswitch isolates the 3-phase power to the gearbox but DOES NOT isolate the 2-phase AC mains supply to upmast transceivers.

The S-Band transmitter system must be fully isolated from both the AC mains supply and the 3-phase supplies at the appropriate mains breaker before opening the unit, attempting any maintenance procedures or working aloft.